REMARKS

Claims 1–21 are pending. Claims 1, 2, 8, 18 and 20 are amended. Claims 18 and 20 are amended in response to the 112 rejection, and are fully supported by the specification, and in particular FIG. 6. Claims 1 and 8 are fully supported by the specification, and in particular page 14, lines 5-10. Support for claim 2 is found on page 6 lines 6-7. Claims 3-4, 9-11, 16-17, 19, and 21 are previously presented. Claims 5-7, and 12-15 are original.

Claims 18 and 20 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant has amended claims 18 and 20 to read on the method as disclosed in FIG. 6 of the specification. Claims 18 and 20, currently amended, are dependent claims, which depend from claim 1 and, as will become apparent, should now be in condition for allowance. The 35 U.S.C. 112 rejection has been overcome.

Claims 1-14, 19, and 21 stand rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (US 6,501,758). Regarding claim 1, Chen et al. disclose a fiber ring {SONET ring) system in which STS level signals, or combinations of STS level signals are used, the system facilitates effective and efficient communication of ATM and TDM traffic over the common fiber ring. The Examiner states that the system, through a variety of configurations and modes of operation, provides flexibility in the distribution of bandwidth between ATM and TDM traffic, citing Col. 4, lines 43-62, Col. 6, lines 66-67, and Col. 7, lines 1-14.

Applicant's currently amended claim 1 now clearly distinguishes Applicant over Chen et al. Claim 1 (step 2) now reads, "assigning a protection mechanism to each logical channel, where the protection mechanism is balanced against bandwidth utilization requirements of grouped data frames that are grouped depending upon protection desired;" Chen et al. teach in

col. 12, lines 1-7, that the "[S]ignal manager 518 further includes an automatic protection switching distributor (APS distr) 554. Automatic protection switching distributor 554 receives the selected outgoing STM signals from multiplexer 552, and determines whether those outgoing signals should be transmitted over working or protection channels of fiber ring 12 and/or tributaries 16." Chen et al. do not teach grouping data frames, nor to grouping according to the protection desired (see Applicant's specification page 14 lines 5-10). Applicant teaches in the specification that using the balanced assigned protection mechanism, the transmission bandwidth of the SONET ring between every pair of nodes is essentially divided into different bandwidth groups, and each bandwidth group is assigned a different level of protection capability. In contrast, Chen et al., in col. 10, lines 1-6, teach that the bandwidth is allocated, but do not teach that it is grouped according to the desired protection. The 102 rejection of claim 1 is respectfully overcome.

Examiner writes, regarding claim 2, Chen et al. disclose STS level signals, or combinations of STS level signals are used. (See column 4, lines 43-62, column 6, lines 66-67, and column 7, lines 1-14, corresponding to SONET data frames comprise a plurality of STS level one frame).

Claim 2 has been amended to read, "wherein STS level one frames can be grouped together depending upon the protection/or bandwidth utilization desired". Support for the amendment is found on page 6, lines 6-7. Claim 2 is now believed to be allowable.

Regarding claim 3, Examiner states that Chen et al. disclose that virtual path automatic protection switching (VP APS) is used for STS/ATM traffic, and uni-directional path-switched ring protection is offered to STS/TDM traffic. (See column 8, lines 24-39, corresponding to the protection mechanism comprise one of a layering SONET protection mechanism and a layer 2 protection mechanism).

Applicant's claim 3 depends on claim 2, which teaches grouping frames according to protection desired. Chen et al. do not teach combining frames and then differentiating between layers 1 and 2, where layer 1 has higher protection level than layer 2. Claim 3, in light of claim 2

(currently amended), and claim 1 (currently amended), is allowable, and the Examiner is requested to withdraw his rejection.

Examiner states regarding claim 4, with reference to FIG. 1, Chen et al. disclose that System 10 facilitates effective and efficient communication of ATM and TDM traffic over a common fiber ring. Through a variety of configurations and modes of operation, system 10 provides flexibility in the distribution of bandwidth between ATM and TDM traffic. For example, if one type of traffic dominates the ring, system 10 can be configured to focus the majority of its resources on communicating that type of traffic. In addition, by providing ATM layer processing functionality at at least some of nodes 14 on fiber ring 12, system 10 facilitates a high granularity in switching ATM information carried in STM signals. Column 2, lines 37-58 (corresponding to limitation of claim 4).

Examiner states, regarding claims 5 and 6, Chen et al. disclose that Fiber ring 12 may comprise, for example, a two-fiber ring configured in a uni-directional path-switched ring (UPSR) mode, or a bi-directional path-switched ring (BL.SR) mode.

Examiner states regarding claim 7, with reference to FIG. 1, Chen et al. disclose that System 10 facilitates effective and efficient communication of ATM and TDM traffic over a common fiber ring. Through a variety of configurations and modes of operation, system 10 provides flexibility in the distribution of bandwidth between ATM and TDM traffic. For example, if one type of traffic dominates the ring, system 10 can be configured to focus the majority of its resources on communicating that type of traffic. In addition, by providing ATM layer processing functionality at at least some of nodes 14 on fiber ring 12, system 10 facilitates a high granularity in switching ATM information carried in STM signals. Column 2, lines 37-58 (corresponding to Layer 2 protection mechanism comprises at least one of; an Ethernet protection mechanism, an Asynchronous transport mode protection mechanism, or a time division multiplexing protection mechanism).

Applicant's claims 4-7 are dependent claims, all depending from claim 2, which depends from claim 1. The limitations for claims 2 and claim 1 distinguish over Chen et al., therefore, Claims 4-7 should be allowed.

Examiner states that claims 8-14 are apparatus claims and have substantially the same scope of respective method claims 1-7, thus they are subject to the same rejection. Furthermore, the Examiner states regarding claims 19 and 21, Chen et al. disclose transmitting hybrid traffic ATM/TDM over a common fiber ring. See abstract, column 1, and lines 32-62 (claimed one or more logical channels of the SONET layer are transmitted over a common fiber channel).

Applicant has amended independent claim 8, wherein the second circuit is assigned a protection mechanism, where the protection mechanism is balanced against bandwidth utilization requirements of grouped data frames that are grouped depending upon protection desired; and a third circuit that monitors logical channels that also have the balanced protection mechanism. Examiner has failed to point out where Chen et al. teach three circuits, two of which have a protection mechanism that is balanced against bandwidth utilization requirements of grouped data frames that are grouped depending upon protection desired. Chen et al. utilize interfacing tributaries 16 in FIG. 1, which are not SONET rings. Applicant's claims 8-14, and 21 read on a network, not a method, and the Examiner has misapplied 102, as is further discussed below. Claim 19 derives its novelty from parent claim 1.

In summary, claims 1-14, 19, and 21 stand rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Chen et al. As the Examiner is well aware, "a claim is anticipated only if each and every element, as set forth in the claim, is found, either expressly or inherently described, in a single prior art reference". *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987), *cited in*, M.P.E.P. § 2131. "The identical invention must be shown in as complete detail as is contained in the ... claim". *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989). In addition, the elements must be arranged as required by the claim. M.P.E.P. § 2131, *citing*, *In re Bond*, 15 U.S.P.Q. 2d 1566 (Fed. Cir. 1990). Thus, if any feature taught by the claimed invention is not taught by the reference cited by the Examiner, then the claimed invention and the reference are patentably distinct. In such a case, a 35 U.S.C. § 102 rejection is improper.

In the case *sub judice*, Applicant has amended independent claims 1 and 8 to include the limitation of *a protection mechanism that is balanced against bandwidth utilization requirements of grouped data frames that are grouped depending upon protection desired.* Chen does not teach grouping data frames depending upon protection desired. Furthermore, claim 2 has been amended to read on *STS level one frames that can be grouped together depending upon the protection / or bandwidth utilization desired.* Claims 3-7 and 19 all depend on claims 1 and/or 2. Nowhere in Chen et al. are either or both of these limitations taught. As such, Chen et al. fail to teach each and every element of the claimed invention, as required under 35 U.S.C. § 102. Additionally, claims 8-14 and 21 read on a network, not a method. Thus, the rejection is now believed to be overcome, and reconsideration of the same is herein requested.

Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. in view of Bisson et al. (US 6,349,092). Regarding claim 15, Chen et al. disclose that VT (Virtual tributary) traffic is carried within the transport Signals (data frame), see column 3, lines 1-24, but it does not explicitly disclose that the VT is VT-1.5. However, Bisson et al. disclose that SONET defines synchronous signals known as virtual tributaries (VTs) to transport lower speed signals and that VTs operate at four levels below STS-1. The four defined sizes of VTs are VT-1.5 (1.728 Mbps) for DS1 signals, VT-2 (2.304 Mbps) for CEPT-1 signals, VT-3 (3.456 Mbps) for DS1C signals, and VT-6 (6.912 Mbps) for DS2 signals. Within an STS-1 frame, each VT occupies a portion of the frame. Within the STS-1, different VT groups can be mixed together to form one STS-1 payload. See column 5, lines 3-11. Therefore, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made, to have the VT frames of Chen et al. comprise VT 1.5 level frames so that lower speed signal can be provided.

Applicant's claim 15 reads on frames, not tributaries. Frames are data packs, not input output streams. Claim 15 depends on claim 8. Examiner has not addressed claim 8, except to state that it is similar to claims 1-7. Chen et al. utilize interfacing tributaries 16 in FIG. 1, and neither Chen et al. nor Bisson et al. teach three circuits, wherein the second circuit is assigned a protection mechanism, and where the protection mechanism is balanced

against bandwidth utilization requirements of grouped data frames that are grouped depending upon protection desired; and a third circuit that monitors logical channels that also has the balanced protection mechanism. As Examiner has pointed out, Chen et al. do not teach VTs. Bisson et al. teach VT-1.5 for DS1C signals that can be combined, however, there is no reason to group together, depending upon the protection/or bandwidth utilization desired. Furthermore, Chen et al. teach in col. 10, lines 2-8 that, "Rather than leaving protection channels idle while working channels transmit information, system 400 uses both working and protection channels to transmit live ATM traffic. System 400 accomplishes this increase in efficiency by utilizing built-in protection switching of the ATM layer, rather than relying on a dedicated physical path on the ring to provide protection." In other words, Chen et al. has dedicated protection channels to transmit live ATM traffic. There is no teaching to combine low bandwidth channels (VT-1.5) having a protection mechanism.

Claims 16 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. Regarding claims 16 and 17, Examiner asserts that Chen et al. disclose STS level signals, or combinations of STS level signals are used. (See column 4, lines 43-62, column 6, lines 66-67, and column 7, lines 1-14.) Examiner admits Chen et al. do not explicitly disclose that the STS-1 frames are non-contiguous. However, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made to have the STS-1 frames of Chen et al. being non-contiguous or contiguous, as required by the type of data, such as time-sensitive (i.e., TDM data) or non time-sensitive data (i.e., ATM data).

Applicant's claim 16 depends from claim 2, which depends from claim 1, both amended. Examiner admits Chen et al. do not explicitly disclose that the STS-1 frames are non-contiguous. In view of the amendments and the lack of teaching by Chen et al., claim 16 is believed to be allowable.

Applicant's claim 17 depends from claim 9, which depends from claim 8. Examiner admits Chen et al. do not teach a plurality of STS level one claims and does not explicitly disclose that the STS-1 frames are non-contiguous. In view of the amendments and the lack of teaching by Chen et al., claim 17 is believed to be allowable.

Claims 18 and 20 stand rejected under 35 U.S.C. 103{a) as being unpatentable over Chen et al. in view of Neuendorff et al. (US 6,657,969). Regarding claims 18 and 20, Chen et al. do not explicitly disclose storing data from the STS frames (two or more logical channels) within a single one of the SONET data frame. However, Neuendorff et al. disclose in the same field of SONET ring technology, storing data from a plurality of STS frames within a SONET frame in each node of the ring. See abstract, column 2, and lines 25-63. Therefore, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made, to store data within STS frame of SONET frame, as taught by Neuendorff et al. in the nodes of Chen et al., so that prevention of losing data can be prevented upon the occurrence of failure in the working ring, as well as fast recovery from failures (Neuendorff et al., col. 2, lines 59-63).

Claims 18 and 20 are amended in response to the 112 rejection and the amendments have returned the scope of the claims to the invention as shown in FIG. 6. Claim 18 reads on the method of claim 1, further comprising: routing data to appropriate hardware switch depending upon traffic type. Claim 20 reads on the method of claim 1, further comprising: sharing bandwidth among network nodes, based on the protection mechanism assigned. In view of the dependency on claim 1, and the foregoing arguments, claims 18 and 20 are now believed to be allowable.

CONCLUSION

Applicant would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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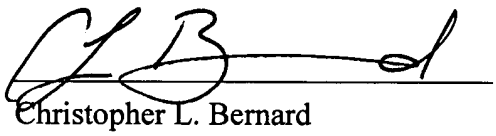

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